

ABSTRACT OF THE DISCLOSURE

An ion shower comprises a plasma source operable to generate source gas ions within a chamber, and an extraction assembly associated with a top portion of the chamber. The extraction assembly is operable to extract ions from the top portion of the chamber. The ion shower further comprises a workpiece support structure associated with the top portion of the chamber that is operable to secure the workpiece having an implantation surface orientated facing downward toward the extraction assembly for implantation thereof. The ion shower of the present invention advantageously facilitates SIMOX processing with a high oxygen fraction, and uniform beam current for next generation processing.